

In this paper we propose using PESO and PSO in the frame of GE as strategies to generate heuristics that solve the Bin Packing Problem (BPP); it is possible however to apply this methodology to other kinds of problems using another Grammar designed for that problem.

REVISTA: Mathematical Problems in Engineering - *Hindawi Publishing Corporation* (pags. 1-12), MÉXICO; ISSN: 1024-123X; INDEXADO EN: JCR

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2014-  
07-01

Many-Objective Portfolio Optimization of Interdependent Projects with 'a Priori' Incorporation of Decision-Maker Preferences.  
**Autor(es):** Cruz-Reyes, Laura; Fernández, Eduardo; Gómez, Claudia; Rivera, Gilberto; Pérez, Fatima

In this paper we introduce a new approach called Non-Outranked Ant Colony Optimization, which optimizes interdependent project portfolios with a priori articulation of decision-maker preferences based on an outranking model. Several experimental tests show the advantages of our proposal over the two-phase approach, providing reasonable evidence of its potential for solving real-world high-scale problems with many objectives.

REVISTA: Applied Mathematics & Information Sciences - *Natural Science Publishing* (pags. 1517-1531), MÉXICO; ISSN: 2325-0399; INDEXADO EN: JCR

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2014-  
03-15

Ant colony system with characterization-based heuristics for a bottled-products distribution logistics system.

**Autor(es):** Gómez-Santillán, Claudia; Cruz-Reyes, Laura; González-Barbosa, Javier; Fraire-Huacuja, Héctor; Pazos, Rodolfo; Martínez, Jose

The aim of this paper is to show the solution of the Vehicle Routing Problem with Time Windows (VRPTW) as a key factor to solve a logistics system for the distribution of bottled products.

REVISTA: Journal of Computational and Applied Mathematics - *Elsevier Science* (pags. 965-977), MÉXICO; ISSN: 0377-0427; INDEXADO EN: JCR

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2013-  
11-24

An Ant Colony Algorithm for Improving Ship Stability in the Containership Stowage Problem

**Autor(es):** Hernández, Paula; Cruz-Reyes, Laura; Melin, Patricia; Mar-Ortiz, Julio; Fraire-Huacuja, Héctor Joaquín; Puga-Soberanes, Héctor José; González-Barbosa, Juan Javier

This paper approaches the containership stowage problem. It is an NP-hard minimization problem whose goal is to find optimal plans for stowing containers into a containership with low operational costs, subject to a set of structural and operational constraints.

REVISTA: Advances in Soft Computing and Its Applications - *Springer Berlin Heidelberg* (pags. 93-104), MÉXICO; ISSN: 0302-9743;

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2013-  
08-10

Application of formal languages in the polynomial transformations of instances between NP-complete problems.

**Autor(es):** Ruiz-Vanoye, Jorge A.; Pérez-Ortega, Joaquín; Pazos, Rodolfo A.; Díaz-Parra, Ocotlán; Fraire-Huacuja, Hector; Frausto-Solis, Juan; Reyes-Salgado, Gerardo; Cruz-Reyes, Laura

In this paper we propose a methodology for transforming instances between NP-complete problems, which differs from Garey and Johnson's. Unlike most transformations which are used for proving that a problem is NP-complete based on the NP-completeness of another problem, the proposed approach is intended for extrapolating some known characteristics, phenomena, or behaviors from a problem A to another problem B.

REVISTA: Journal of Zhejiang University Science C - *Springer Berlin Heidelberg* (pags. 623-633), MÉXICO; ISSN: 1869-1951; INDEXADO EN: JCR

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2013-  
01-01

A Visualization Tool for Heuristic Algorithms Analysis

**Autor(es):** Cruz-Reyes, Laura; Gómez-Santillán, Claudia; Castillo-García, Norberto; Quiróz-Castellanos, Marcela; Ochoa-Ortiz Zezzatti, Carlos Alberto; Hernández-Hernández, Paula

In this paper a visual diagnosis tool named VisTHAA, which provides researchers statistical and visual information about instances and algorithms, is proposed.

REVISTA: Advances in Intelligent Systems and Computing - *Springer Berlin Heidelberg* (pags. 515-524), MÉXICO; ISSN: 2194-5357;

DIRECCION ELECTRÓNICA: [http://link.springer.com/chapter/10.1007/978-3-642-30867-3\\_46](http://link.springer.com/chapter/10.1007/978-3-642-30867-3_46)

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2012-  
08-13

Heurísticas de agrupación híbridas eficientes para el problema de empaqueo de objetos en contenedores.

**Autor(es):** Cruz-Reyes, Laura; Quiroz-Castellanos, Marcela; Alvim, Adriana C. F.; Fraire-Huacuja, Héctor Joaquín; Gómez-Santillán, Claudia; Torres-Jiménez, José

En este artículo se aborda un problema clásico muy conocido por su aplicabilidad y complejidad: el empaqueo de objetos en contenedores (Bin Packing Problem, BPP). Para la solución de BPP se propone un algoritmo genético híbrido de agrupación denominado HGA-BP.